

FIG. 1

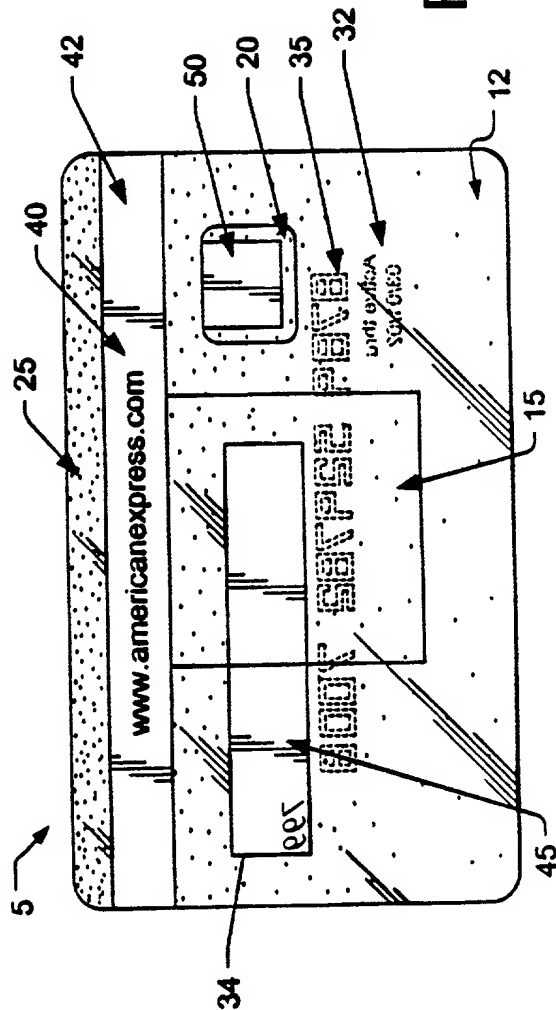


FIG. 2

2/33

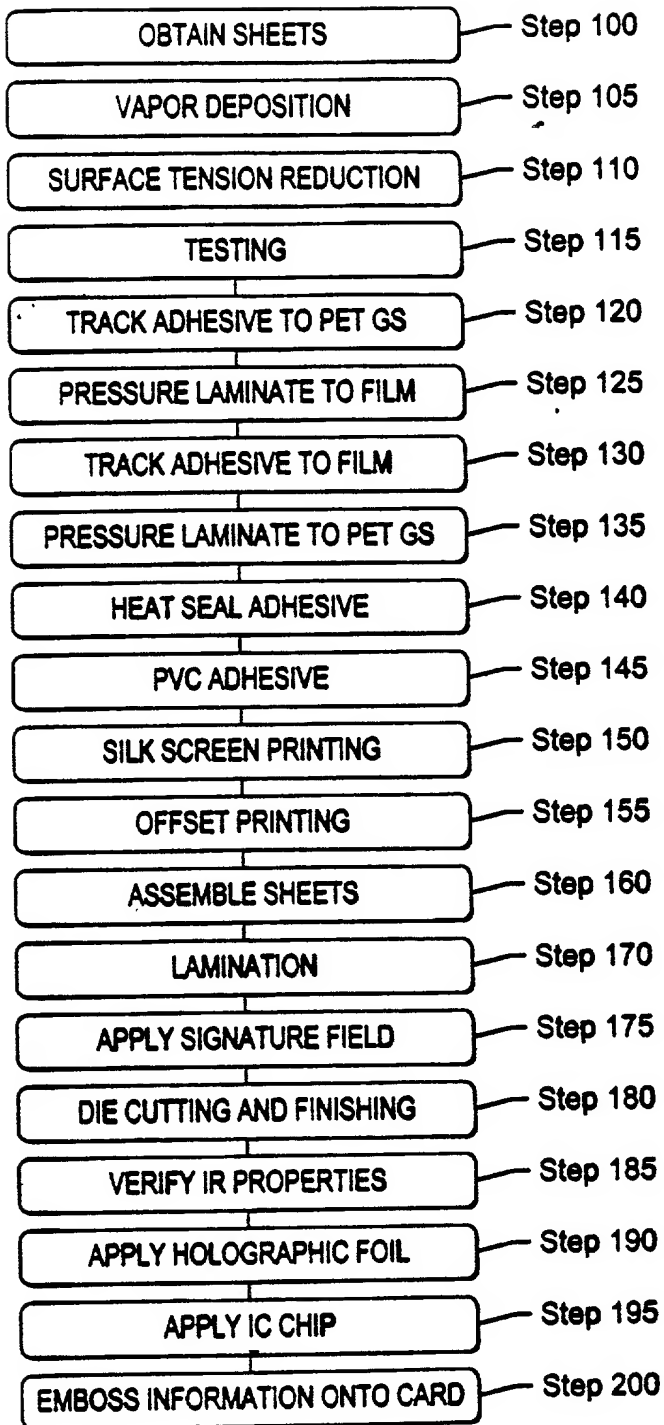


FIG. 3

3/33

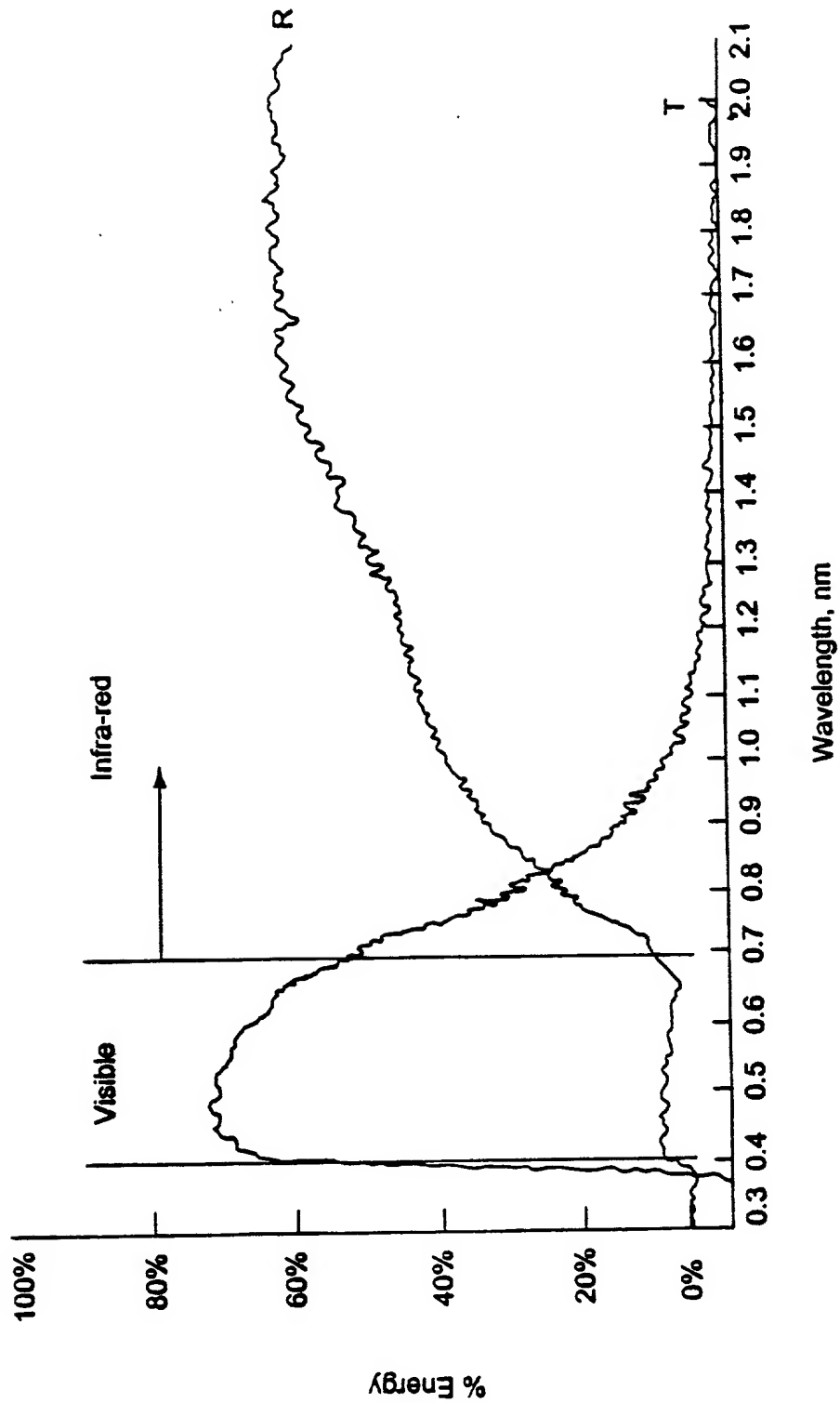
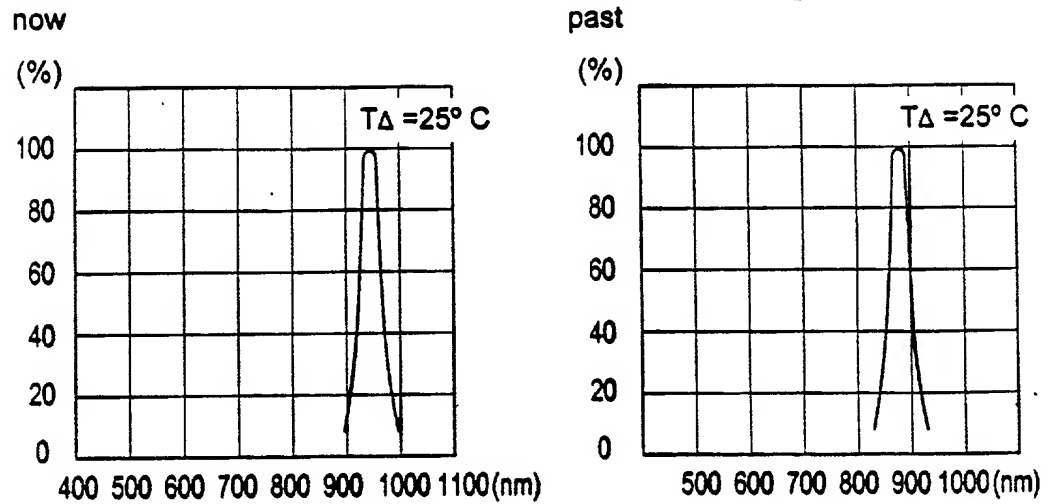


FIG. 4

4/33

The spectral curve of the LED



LED that Sankyo use overall is 800-1000 nm wavelength

FIG. 5

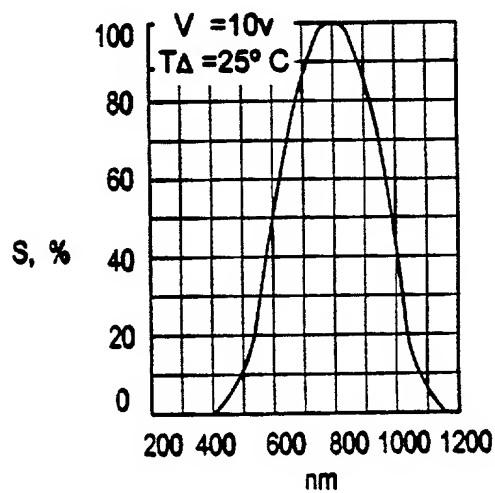


FIG. 6

FIG. 7A

CARD FRONT

Holographics, embossed surface, chip, etc.

PVC laminate - 2.0 mil

Printed PVC - 9.0 mil

PVC adhesive - 2.0 mil

PET GS - 1.7 mil

PET IR block film - 2.0 mil

PET GS - 1.7 mil

PVC adhesive - 2.0 mil

Printed PVC - 9.0 mil

PVC Laminate with Magnetics - 2.0 mil

Signature Panel, magnetic strip, etc.

CARD BACK

Sub-Assembly Construction

6/33

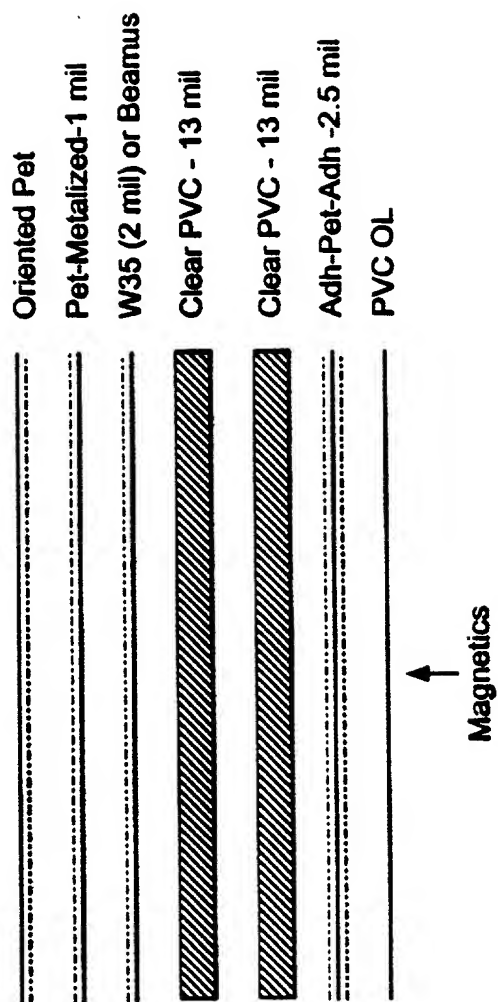


FIG. 7B

7/33

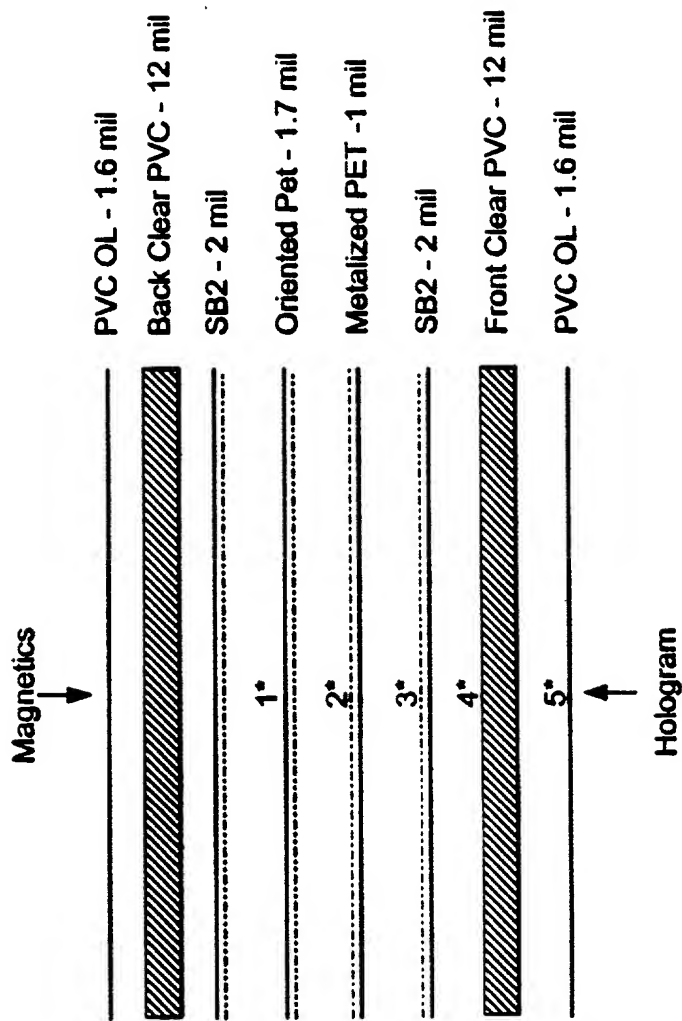


FIG. 7C

8/33

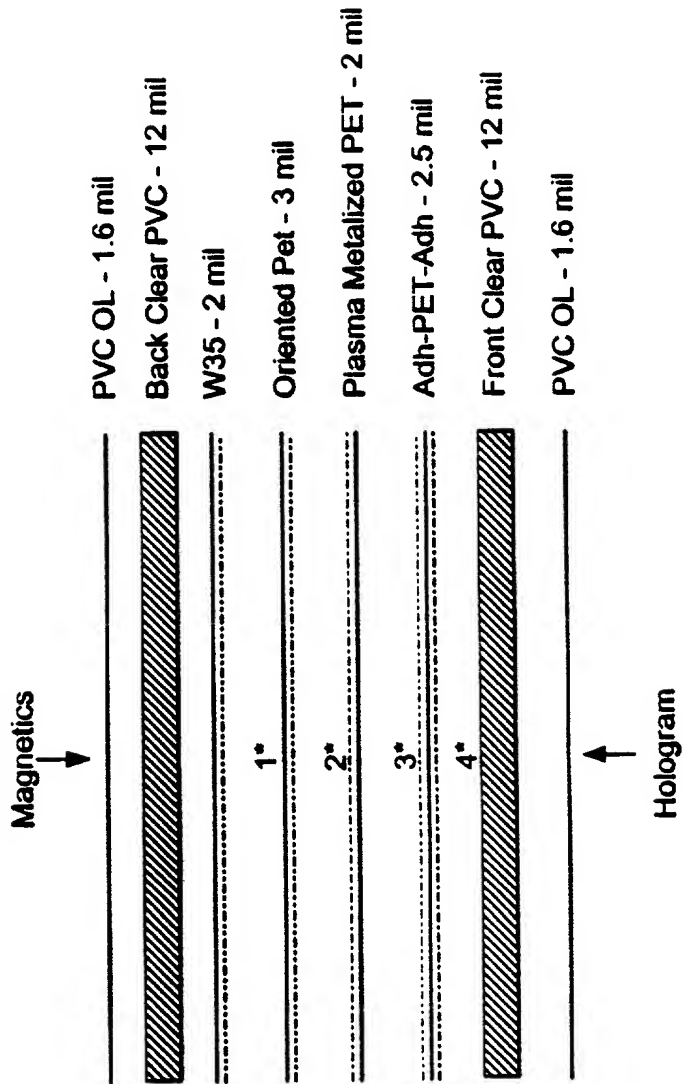


FIG. 7D

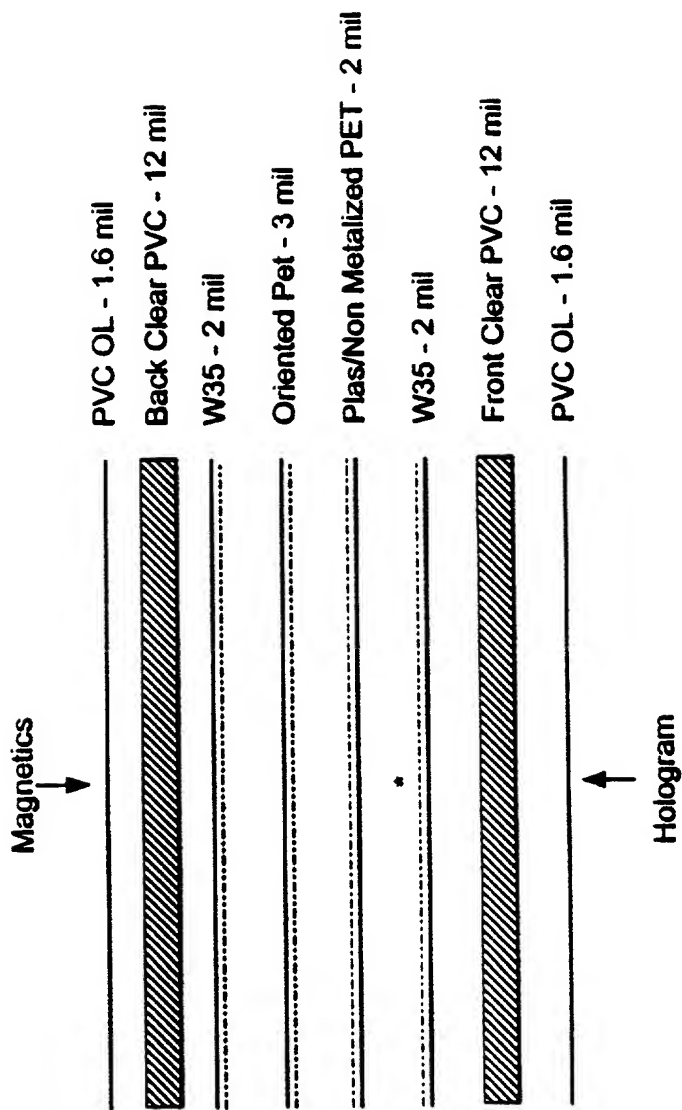


FIG. 7E

10/33

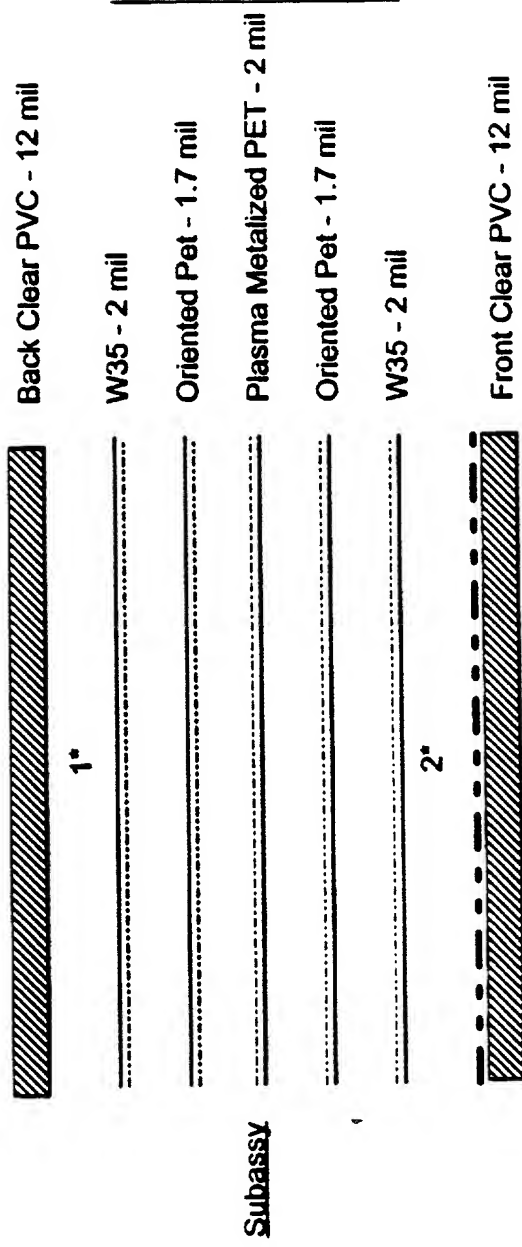


FIG. 7F

11/33

Card Front

Holographics, embossed surface, chip, etc.

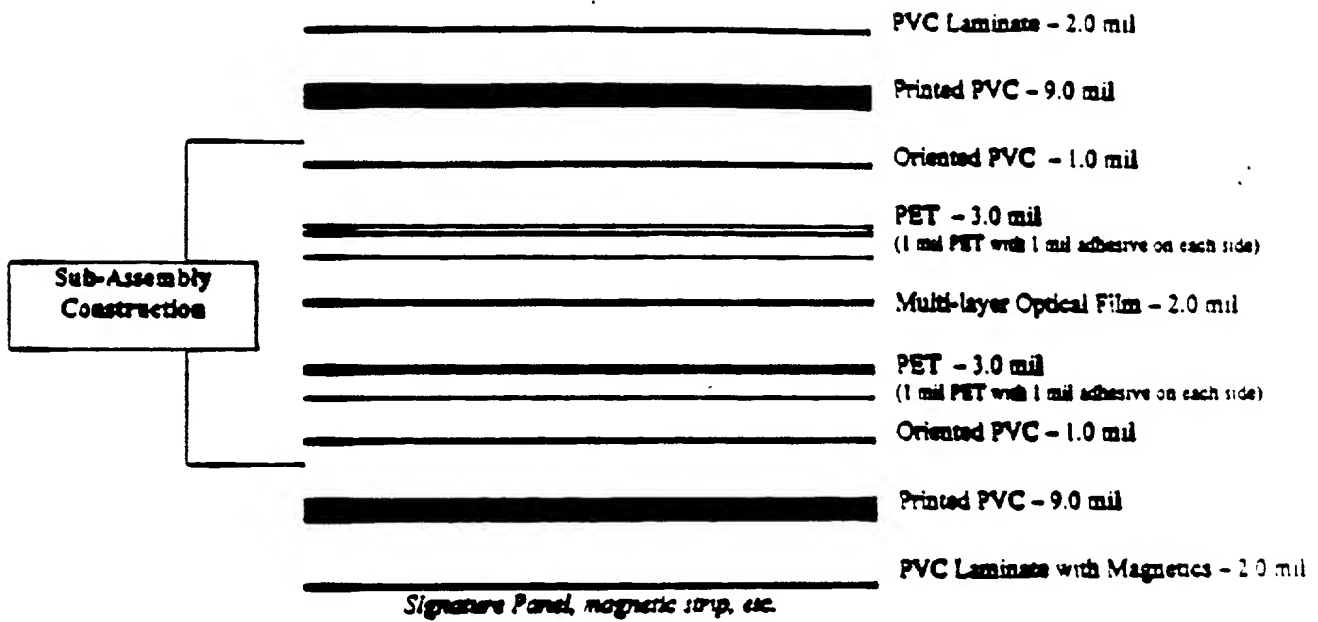


FIGURE 7G

12/33

Card Front

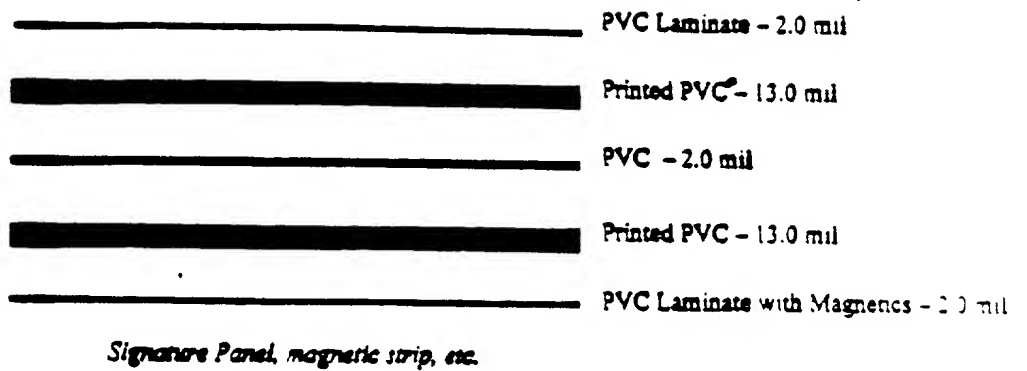


FIGURE 7H

13/33

Card Front

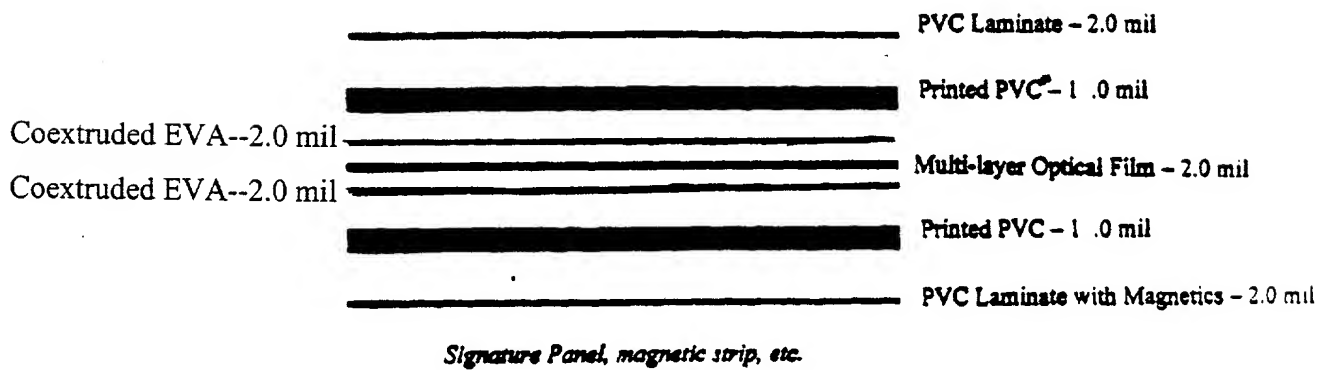


FIGURE 7I

14/33

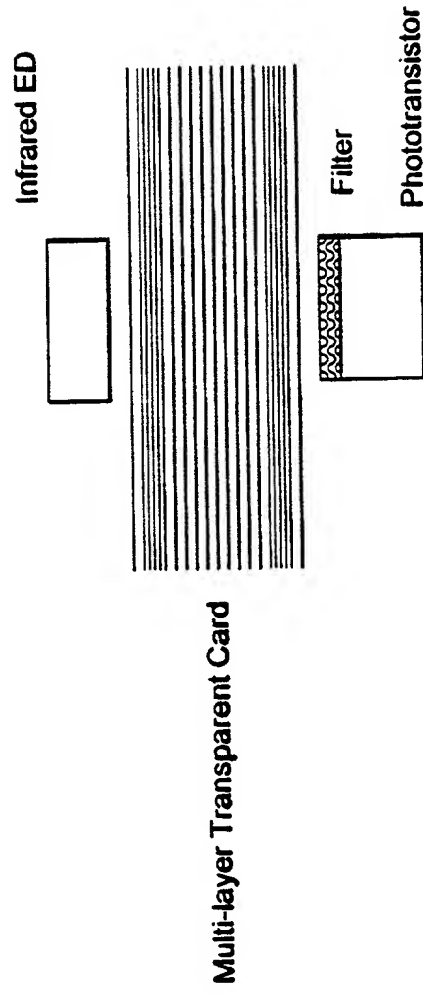


FIG. 8

15/33

Transmission Detection

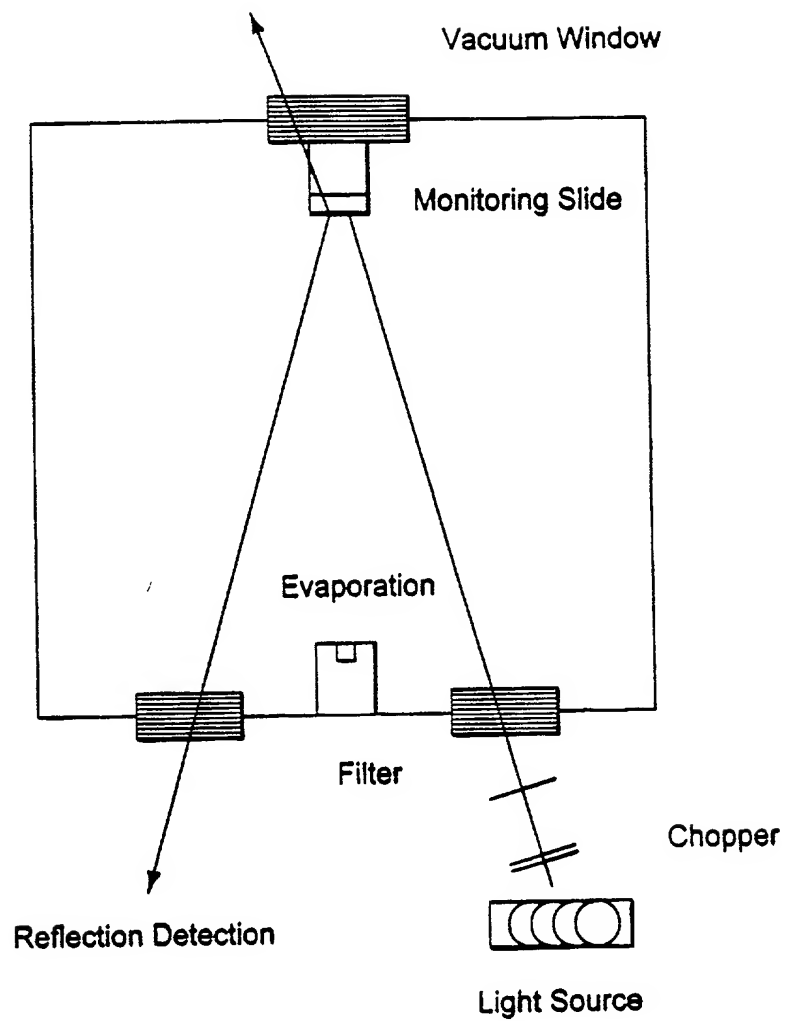


FIG. 9

16/33

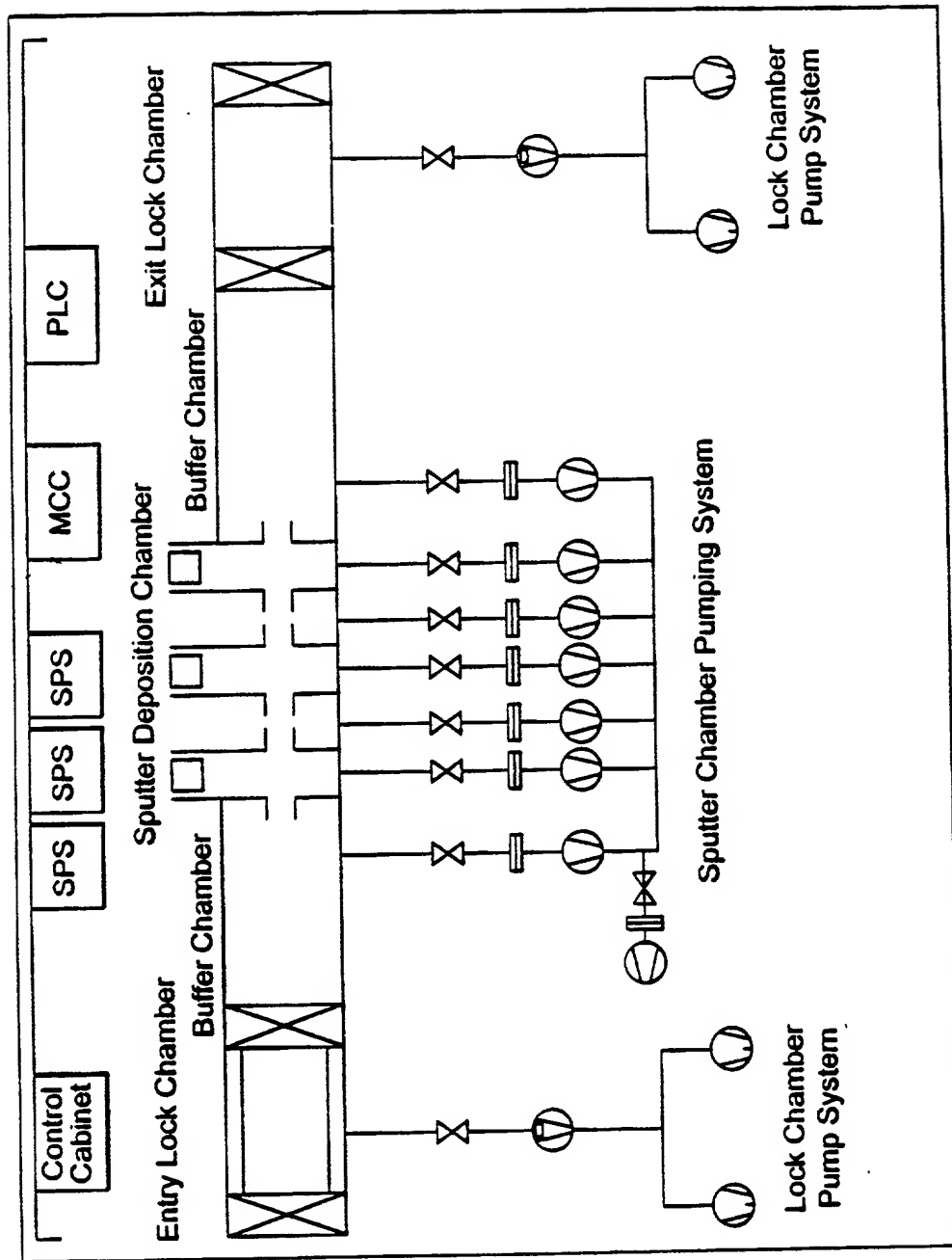


FIG. 10

17/33

Number	Material	Specifications	Source	Comments
Construction 1 - white needs work, lamination temperature too low, pvc core bond low.				
1	pvc laminate	1.60	oberthur	front 4:1,4.4; back 4.0,4.0
2	pet adhesive both sides	2.50	allied signal	
3	printed core - white #1	12.00	oberthur	
4	printed core - white #1	12.00	oberthur	
5	wl-35 pvc (adh to xir)	2.00	klockner	
6	xir (metal to pet gs)	1.00	southwall	
7	pet glue/stamp	1.70	d & k	1.2 mil adhesive, 0.5 mil pet.
Total		32.80		thickness .030-.031
Construction 2				
1	pvc laminate	1.60	oberthur	
2	pet adhesive both sides	2.50	allied signal	
3	printed core	12.00	oberthur	
4	printed core	12.00	oberthur	
5	wl-35 pvc (adh to xir)	2.00	klockner	
6	xir (metal to pet gs)	1.00	southwall	
7	pet glue/stamp (adh to xir)	1.70	d & k	1.2 mil adhesive, 0.5 mil pet.
8	wl-35 pvc (adh to pet)	2.00	klockner	
Total		34.80		
Construction 3				
1	pvc laminate	1.60	oberthur	
2	pet adhesive both sides	2.50	allied signal	
3	printed core	12.00	oberthur	
4	printed core	12.00	oberthur	
5	wl-35 pvc (adh to xir)	2.00	klockner	
6	xir (metal to pet gs)	1.00	southwall	
7	pet glue/stamp (adh to xir)	1.70	d & k	1.2 mil adhesive, 0.5 mil pet.
8	gomar pvc (adh to pet)	2.00	allied signal	
Total		34.80		
Construction 4 - white #2 too dark, temperature too low, pvc lamination bond low				
1	pvc laminate	1.60	oberthur	front - 4.0, 4.3; back tear
2	pet adhesive both sides	2.50	allied signal	
3	printed core - white #2	12.00	oberthur	
4	printed core - white #2	12.00	oberthur	
5	bemis (adh to xir)	2.00	klockner	
6	xir (metal to pet gs)	1.00	southwall	
7	pet glue/stamp	1.70	d & k	1.2 mil adhesive, 0.5 mil pet.
Total		32.80		thickness .030 - .031
Construction 5 - white #3 too dark, temperature too low - pvc lamination bond low				
1	pvc laminate	1.60	oberthur	
2	pet adhesive both sides	2.50	allied signal	
3	printed core - white #3	12.00	oberthur	
4	printed core - white #3	12.00	oberthur	
5	w-35 (adh to xir pet)	2.00	klockner	
6	xir (metal to pet gs)	1.00	southwall	
7	pet glue/stamp	1.70	d & k	1.2 mil adhesive, 0.5 mil pet.
Total		32.80		thickness .030 - .031
howard 1.0 coating				
1	neocryl b725	33.60	zeneca?	
2	EtOH	31.20		
3	nPOAc	31.20		

FIG. 11

18/33

4 citraflex a4	4.00	moreslip, greensboro	
Total	100.00		
Construction #6 - seems to stick ok, best so far, scale up. Make sub-laminat (aka - s)			
1 pvc laminate	1.60	oberthur	
2 core pvc	12.00	oberthur	
3 bemis	2.00	bemis	
4 petgs	1.70	d & k	
5 xir (metal to pet gs)	1.00	southwall	plasma treated
6 bemis	2.00	bemis	
7 core pvc	12.00	oberthur	
8 pvc laminate	1.60	oberthur	magnetics
Total	33.90		
herslow sublamination			
Total Price			
Construction #7 - seems to stick ok, best so far, scale up. Make sub-laminat (aka - t)			
1 pvc laminate	1.60	oberthur	
2 core pvc	12.00	oberthur	
3 w-35	2.00	bemis	
4 petgs	1.70	d & k	
5 xir (metal to pet gs)	1.00	southwall	plasma treated
6 bemis	2.00	bemis	
7 core pvc	12.00	oberthur	
8 pvc laminate	1.60	oberthur	magnetics
Total	33.90		
Construction #7 - seems to stick ok, best so far, scale up. Make sub-laminat (aka - t)			
1 pvc laminate	1.60	oberthur	
2 core pvc	12.00	oberthur	
3 w-35	2.00	bemis	
4 petgs	1.70	d & k	
5 xir (metal to pet gs)	1.00	southwall	plasma treated
6 w-35	2.00	bemis	
7 core pvc	12.00	oberthur	core to core = 14.2 lb.in.
8 pvc laminate	1.60	oberthur	magnetics
Total	33.90		
Construction #8 - sublamine to be used with 12 mil pvc core			
1 w-35	2.00		
2 petgs	1.70		
3 xir (metal to pet gs)	1.00		
Total	4.70		
Construction #9 - sublamine to be used with 10 mil pvc core			
1 pvc laminate	1.60		
2 w-35	2.00		
3 petgs	1.70		
4 xir (metal to pet gs)	1.00		
5 bemis	2.00		
6 pvc laminate	1.60		
Total	9.90		
Construction #10 (if u works)			
1 w35	2.00		
2 petgs	1.70		
3 xir (metal to pet gs)	1.00		
4 w35	2.00		

FIG. 11
continued

19/33

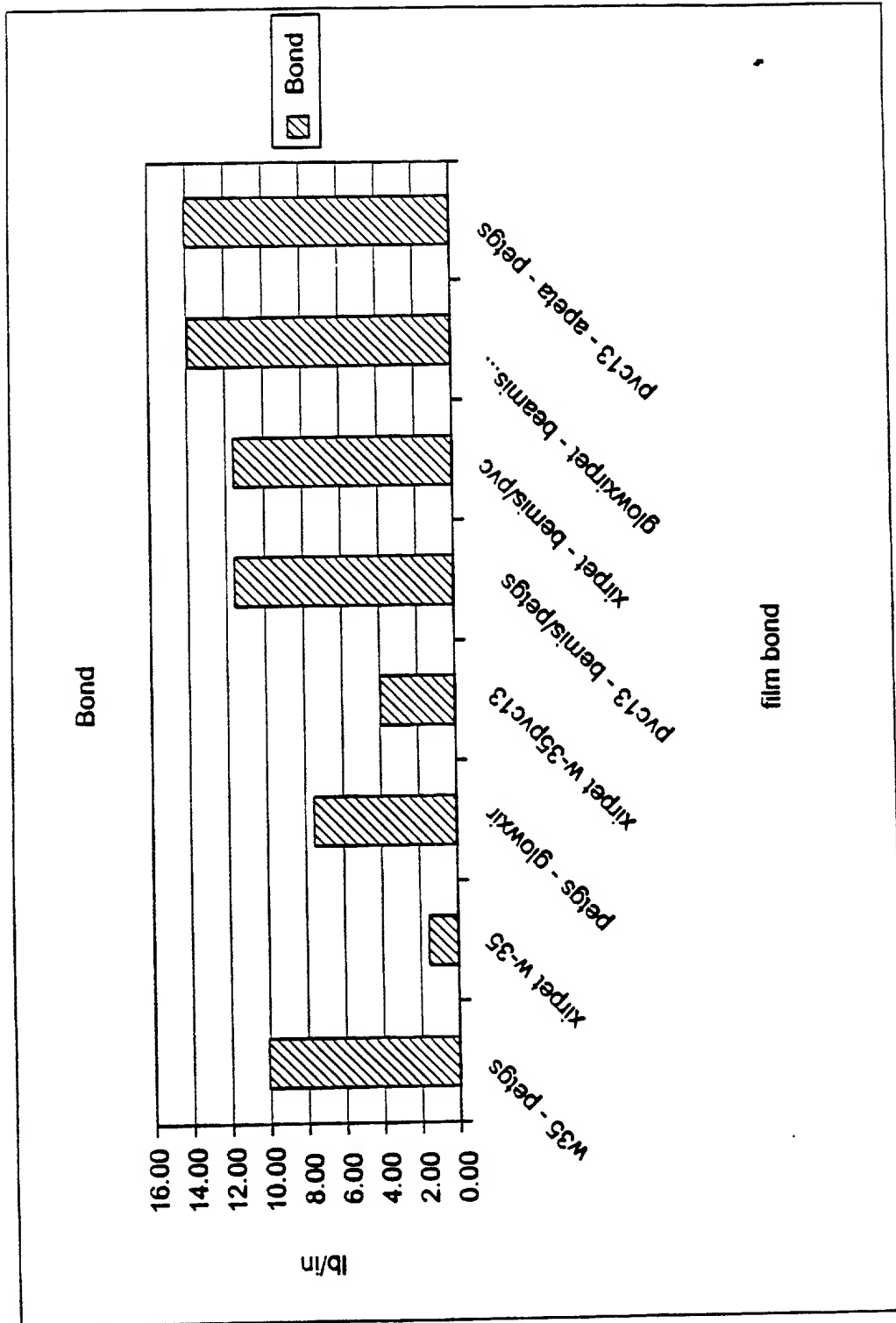


FIG. 12A

20/33

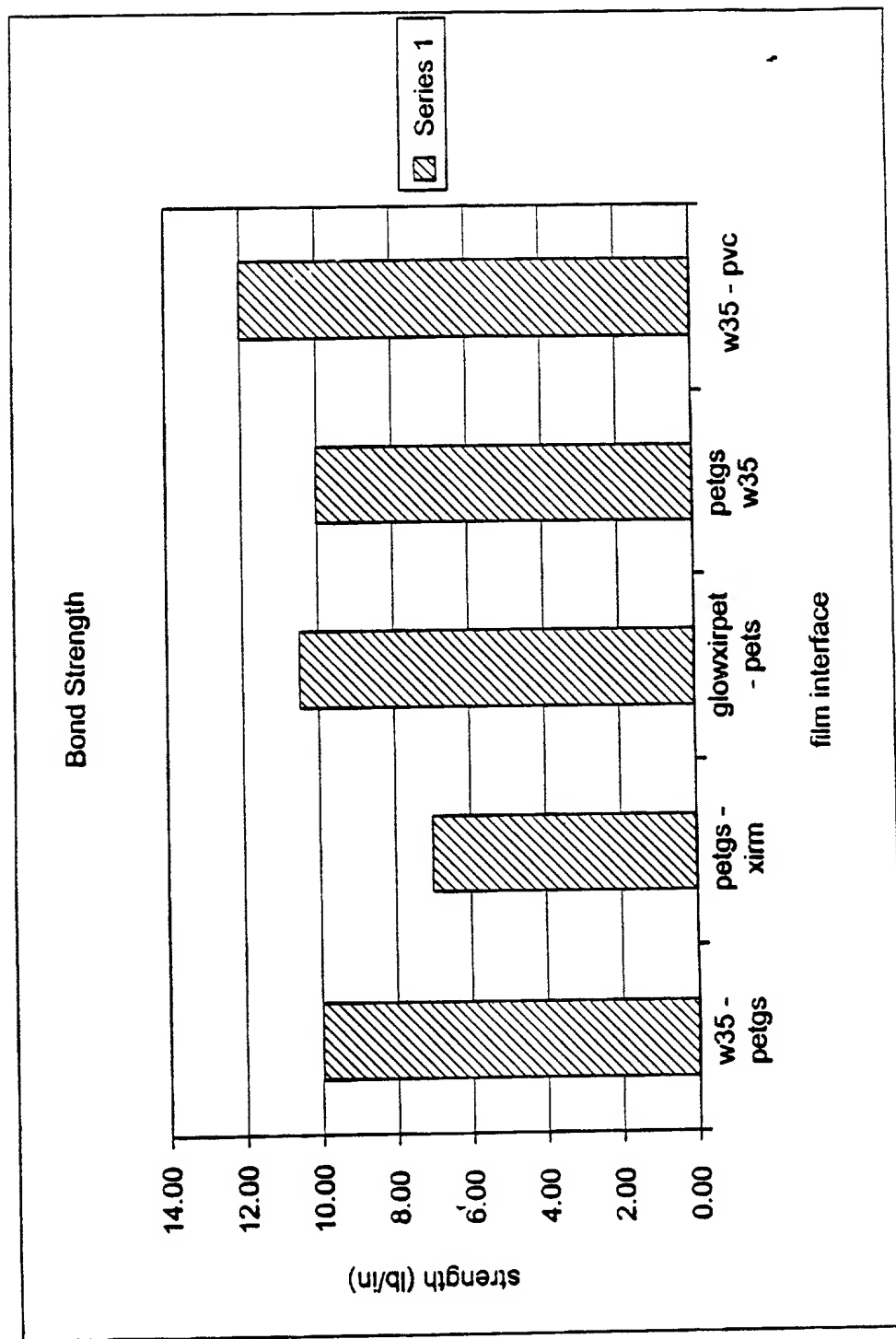


FIG. 12B

21/33

Total	6.70	
ir ink - printed core		
1 tm mixing clear	0.80	sericol
2 vmca resin	0.07	union carbide
3 cyclohexanone	0.10	aldrich
4 epolight vii-164	0.03	epolin
Total	1.00	
ir ink #2		
1 vinyl vmca resin	0.55	union carbide
2 eep solvent	0.35	eastman kodak
3 cyclohexanone	0.05	aldrich
4 epolight vii-164	0.03	epolin
5 epolight vi-30	0.02	epolin
Total	1.00	
ir ink #3		
1 tm mixing clear	0.90	sericol
2 cyclohexanone	0.03	aldrich
3 epolight vii-164	0.03	epolin
4 epolight vi-30	0.02	epolin
5 epolight 6084	0.02	epolin
Total	1.00	

FIG. 13

22/33

Green Card Measurements

Wavelength	Transmission Density	ATM Readability	ISO Compliant
400 to 470	1.5 to 2.4	Yes	Yes
470 to 640	1.3 to 0.9	Yes	No
640 to 780	1.3 to 2.5	Yes	Yes
780 to 800	1.3 to 1.2	Yes	Borderline
800 to 1000	1.3 to 2.6	Yes	Yes

FIG. 14

Green RCP ATM Test Results

ATM Manufacturer	Equipment Type	Notes	Global Platform		Pass/Fail
NCR Corporation	15 NCR ATMs 6 Diebold ATMs	Diagnostic and Application tested	Yes		Pass
Diebold	202 and 861 (Universal) Series and Kyoto series (made by Omron)	Diebold require opacity of greater than 1.3 from 700nm plus for acceptance in all Diebold machines	Yes		Pass
Fujitsu	5 ATMs with motorized track, motorized track 2 and dip readers	ATM configuration included card reader firmware for card detection,	Yes (except Japan)		Pass

FIG. 15

23/33

24/33

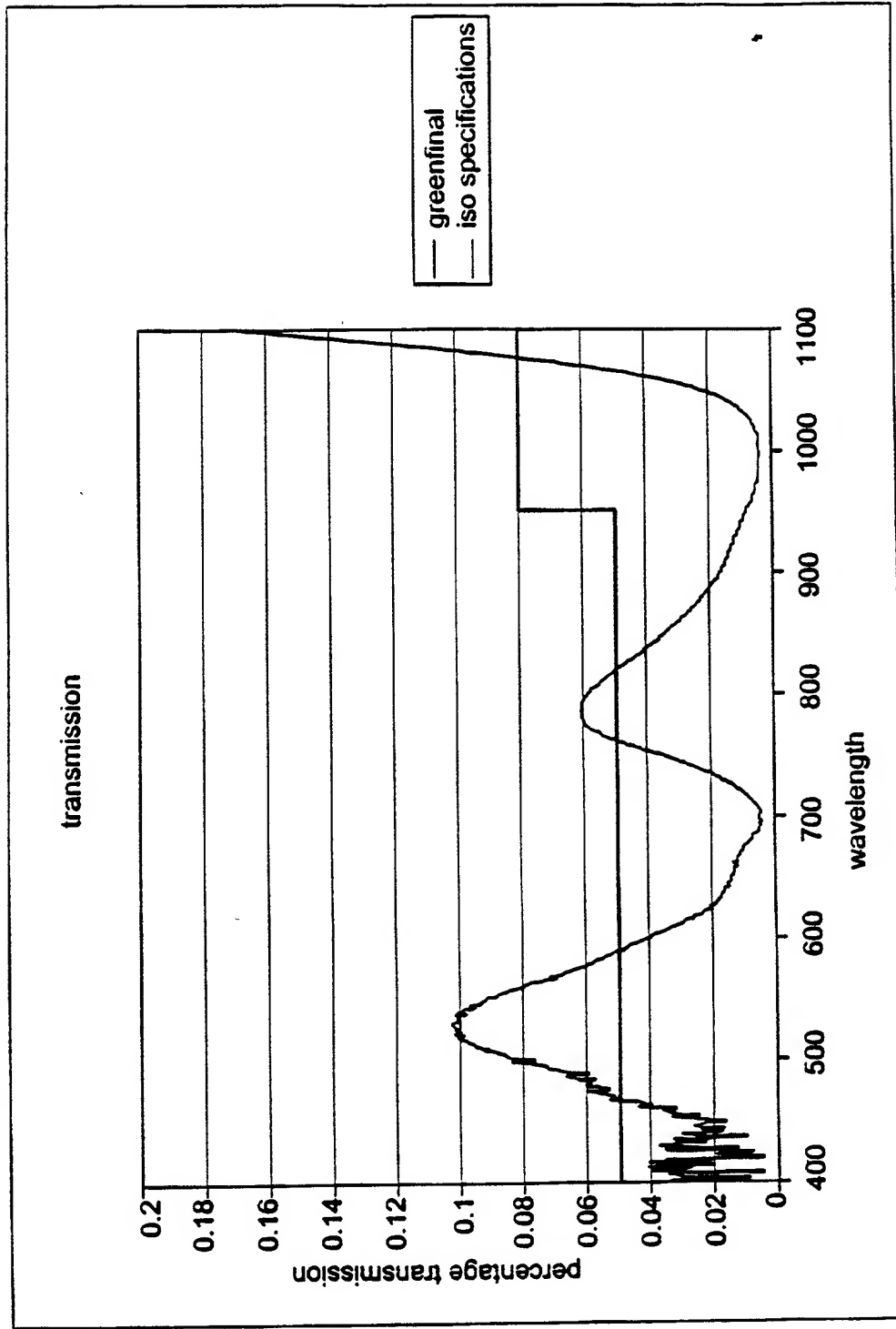


FIG. 16

25/33

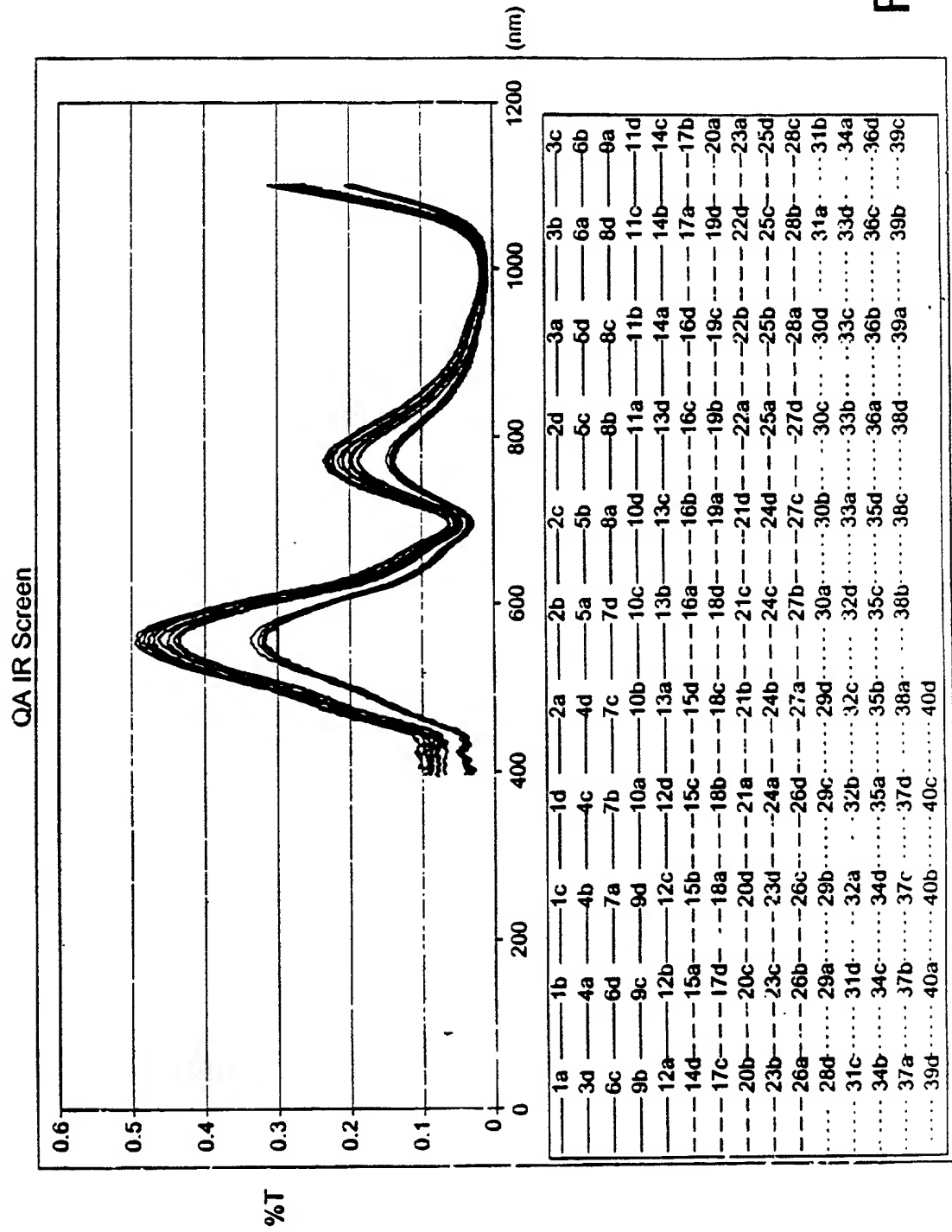


FIG. 17A

26/33

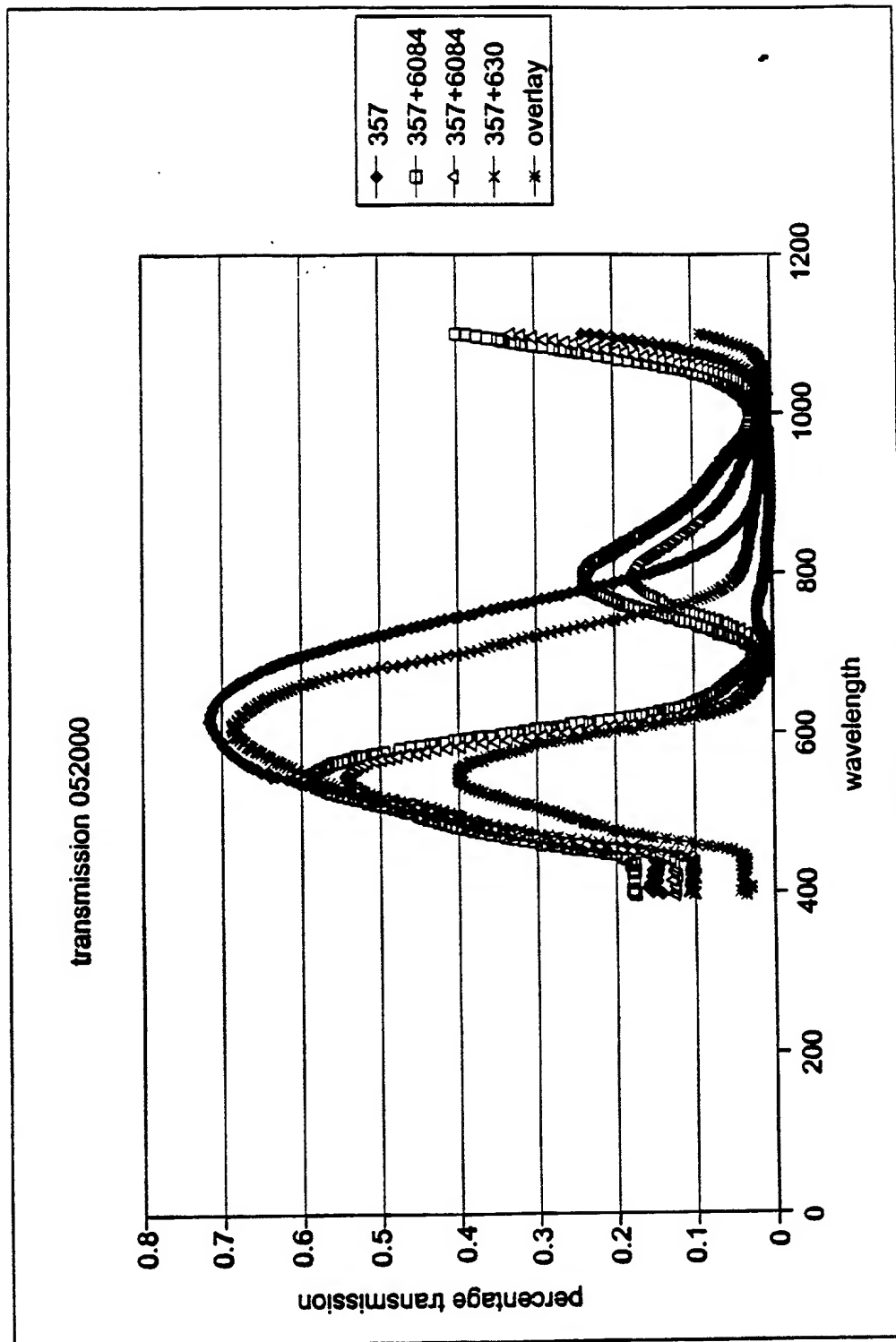


FIG. 17B

27/33

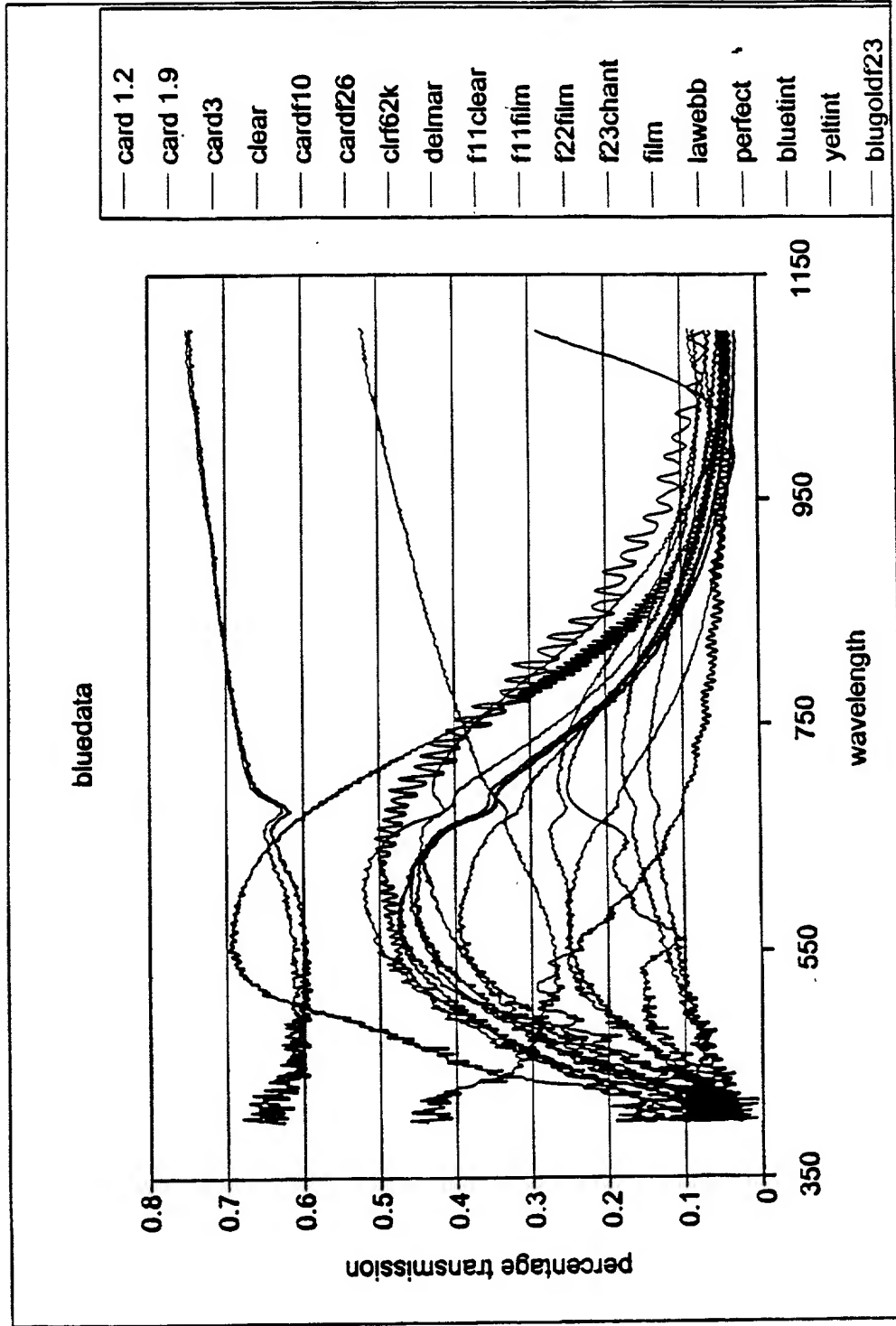


FIG. 17C

28/33

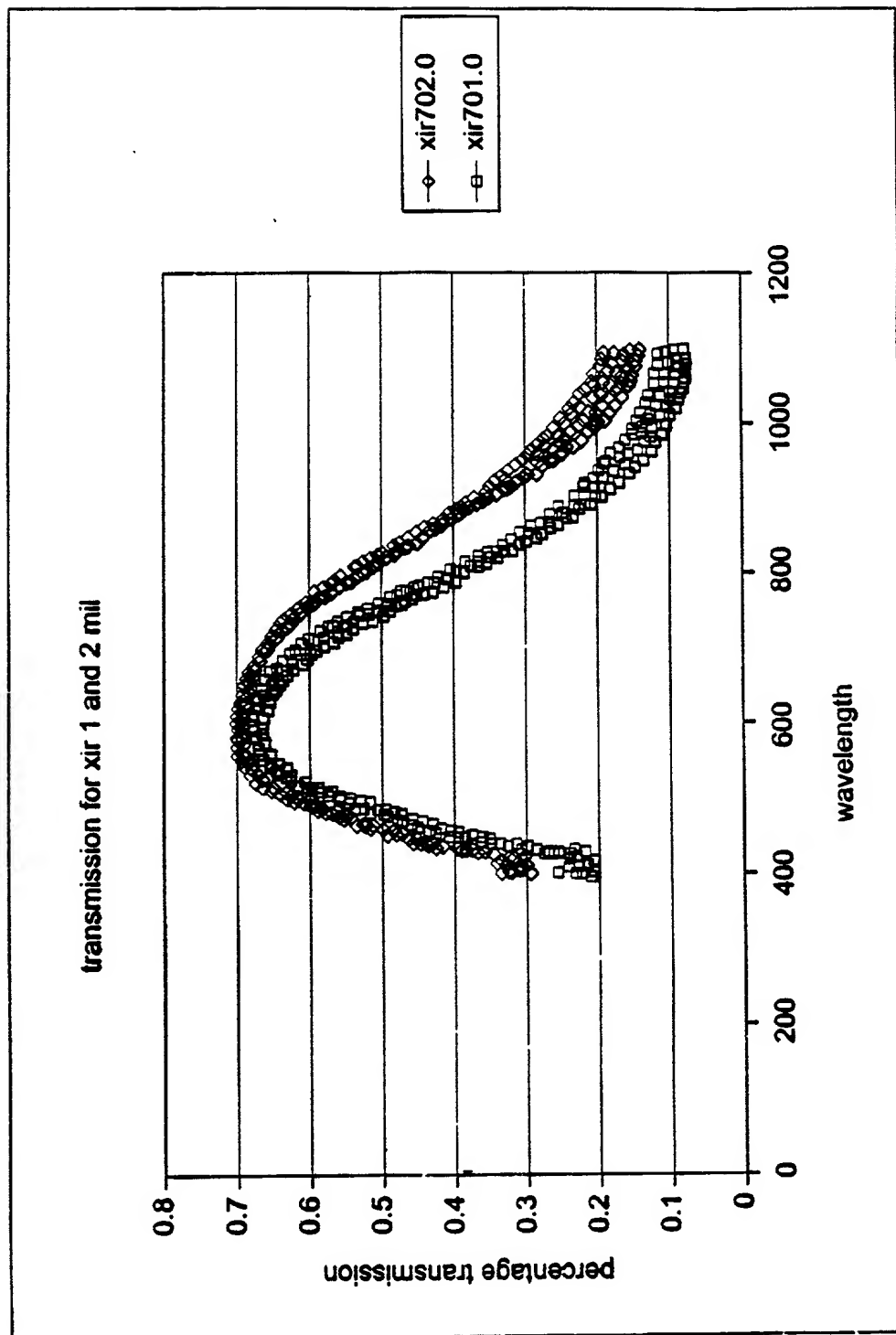


FIG. 17D

29/33

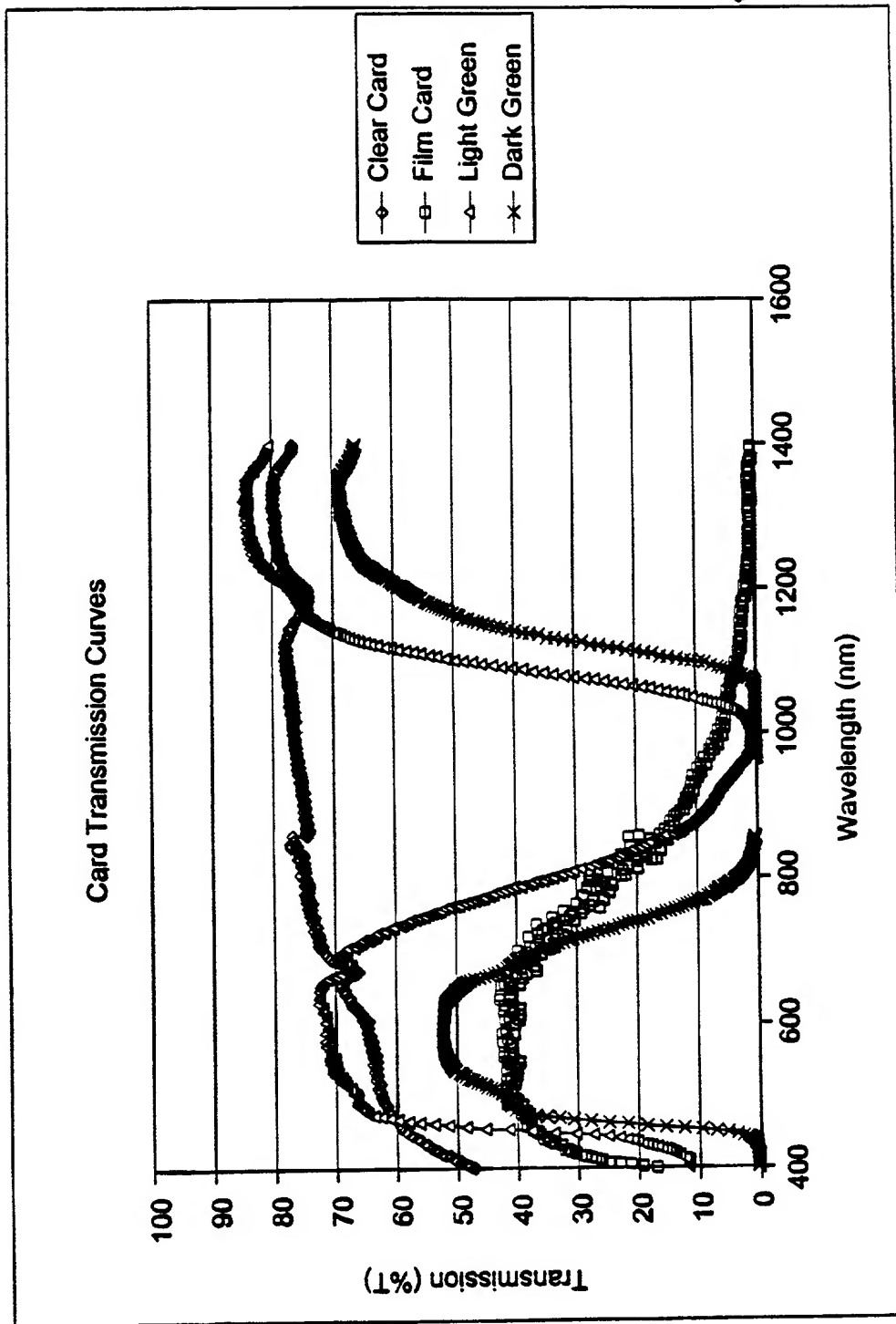


FIG. 17E

30/33

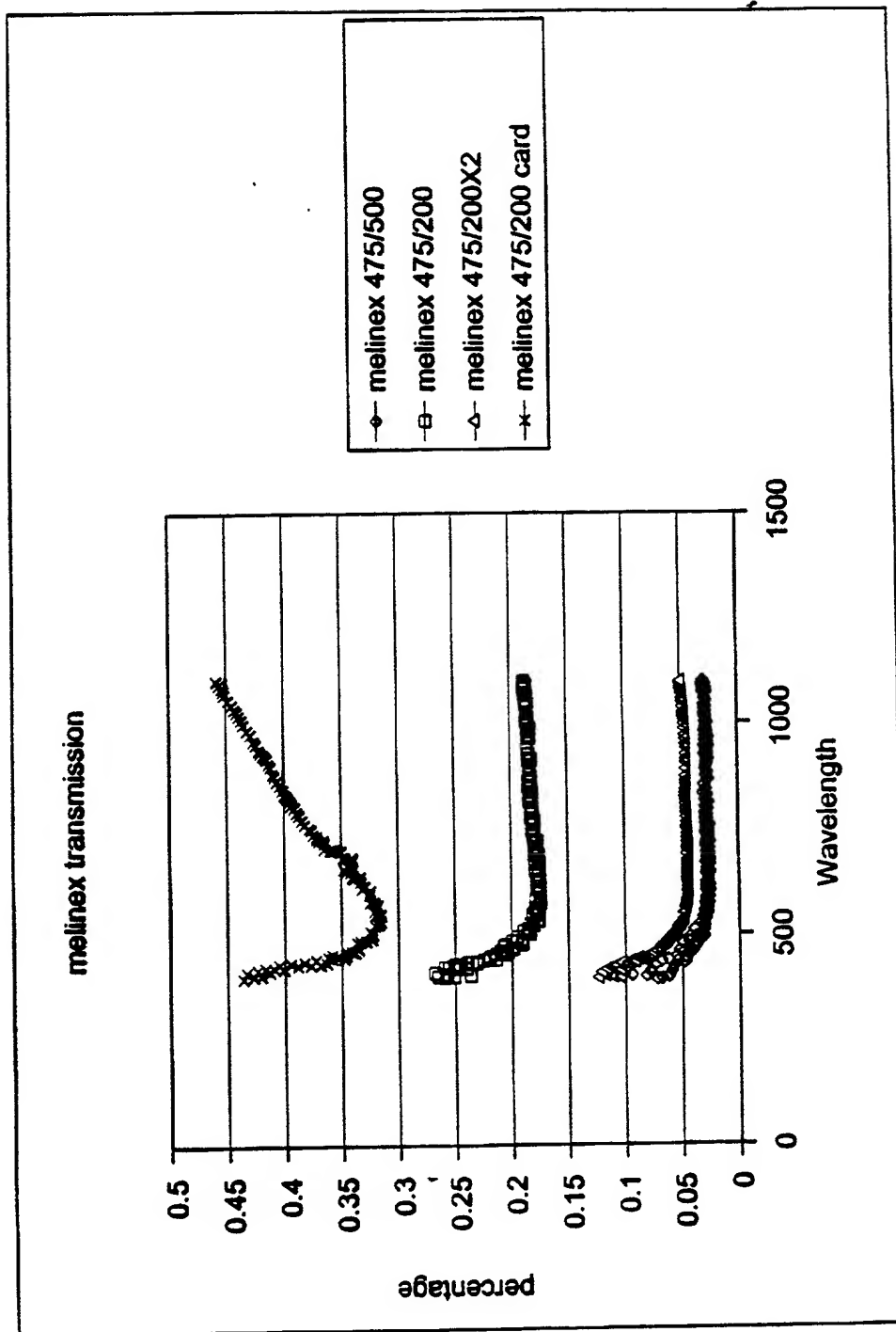


FIG. 17F

31/33

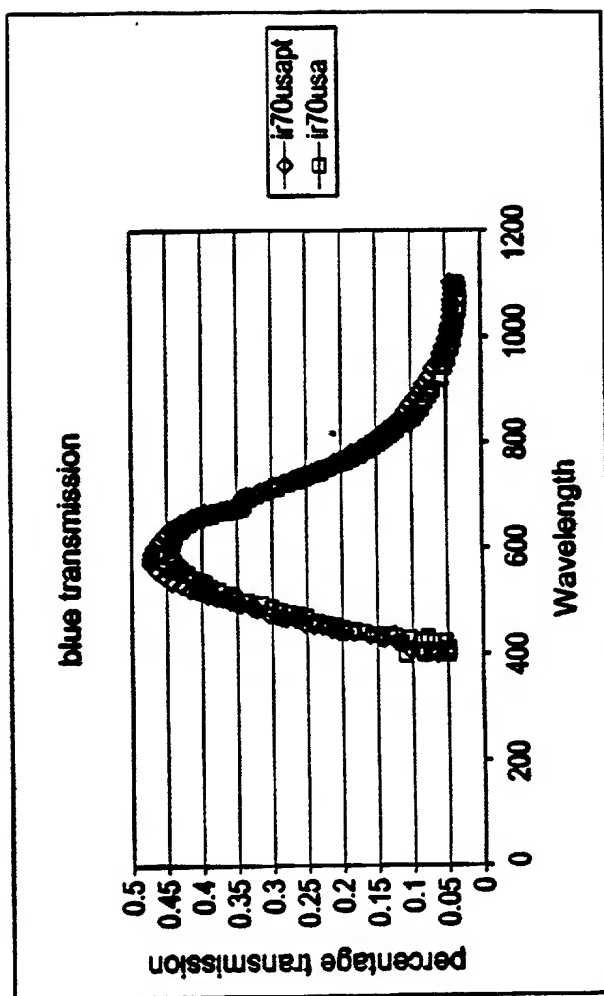


FIG. 17G

32/33

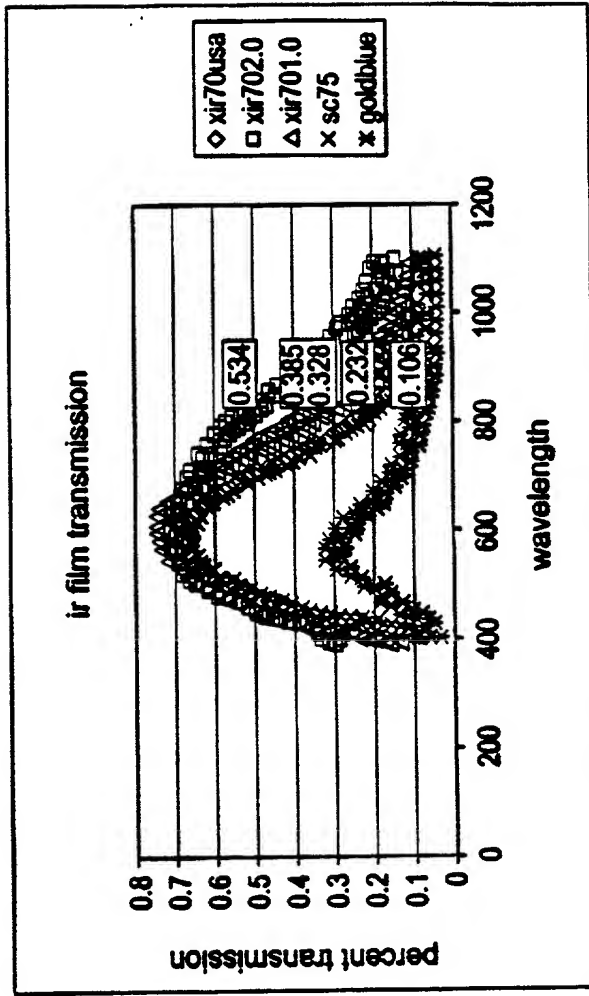


FIG. 17H

33/33

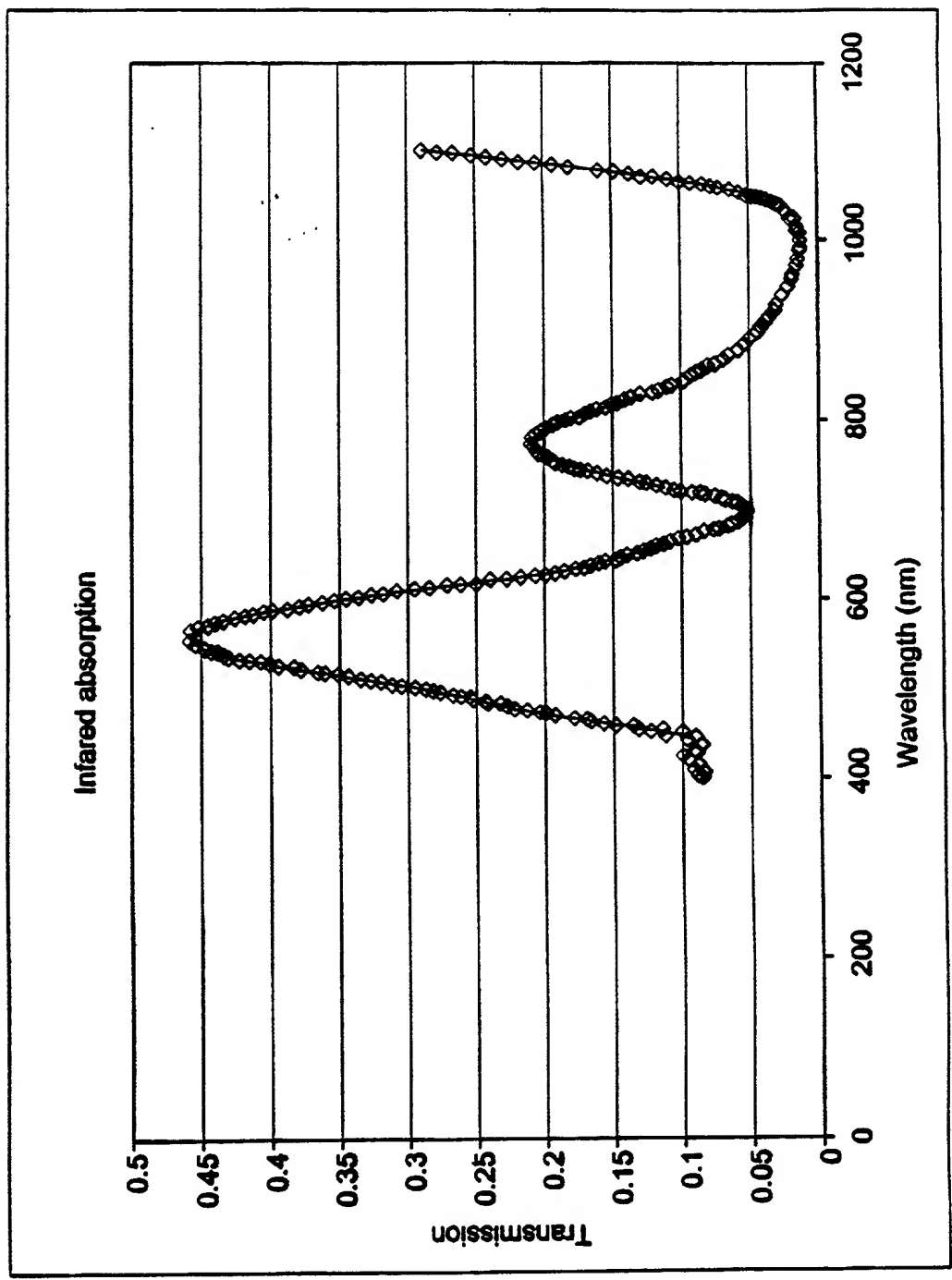


FIG. 171